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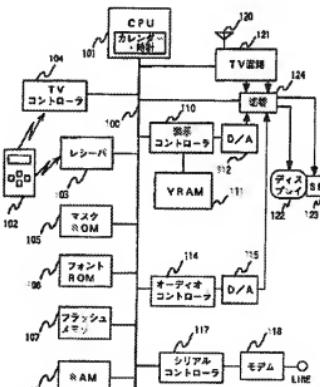
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(74) Agent: Mutsuhiko Yamano, patent attorney(54) [Title] METHOD AND DEVICE FOR AUTOMATICALLY DISPLAYING INTERNET HOMEPAGE  
LINKED WITH TV PROGRAM ON TV SCREEN**(57) Abstract****Problem**

To provide a method and a device that can automatically display an Internet homepage linked with a TV program on a TV screen.

**Means to solve**

TV program guide data including the URL information of the Internet related to each TV program are externally input into a storage means. The viewer detects the watched channel information indicating the channel being watched. The viewer specifies the program being watched by comparing the watched channel information indicating the channel being watched with the TV program guide data. The URL related to the specified program and included in the program guide data is accessed automatically. In this way, the browser screen of the homepage of said URL is displayed in one portion of a divided TV screen or in a window opened on the TV screen.



Key:

|     |                      |
|-----|----------------------|
| 101 | CPU<br>Counter/clock |
| 103 | Receiver             |
| 104 | TV controller        |

|     |                    |
|-----|--------------------|
| 105 | Mask ROM           |
| 106 | Font ROM           |
| 107 | Flash memory       |
| 110 | Display controller |
| 114 | Audio controller   |
| 117 | Serial controller  |
| 118 | Modem              |
| 121 | TV circuit         |
| 122 | Display            |
| 124 | Switch             |

[There are no amendments to this patent.]

### Claims

1. A method for automatically displaying an Internet homepage linked with a TV program being watched on a viewer's TV, characterized by having
  - a first step for detecting the watched channel information indicating the channel that the viewer is watching,
  - a second step for specifying the program being watched by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information,
  - a third step for identifying the URL information related to the specified program and included in the program guide data,
  - a fourth step for accessing the identified URL information, and
  - a fifth step for displaying the browser screen of the homepage of said URL information in one of divided screens on the TV or in a window opened on the TV screen.
2. The method described in Claim 1, characterized by having a step that uses the Internet or broadcasting media to automatically and periodically acquire said TV program guide data.
3. The method described in Claim 2, characterized by the fact that an Internet connection time established by operation of the viewer is used to automatically acquire said TV program guide data.
4. The method described in Claim 1, characterized by the fact that if the continuous watching time of a certain program is shorter than a predetermined time, the URL information of that program is ignored.
5. The method described in Claim 1, characterized by the fact that if time information in a program accompanying the URL information is specified in the third step, the URL is accessed at the time specified by the time information in the fourth step.

6. The method described in Claim 1 or 5, characterized by the fact that if multiple URL information items to access a program are identified in the third step, a menu window used for selecting one of the URL information items by the viewer is opened on the TV screen.

7. The method described in Claim 1, characterized by the fact that if the type of program accompanying the URL information has been identified in the third step, the URL is accessed in the fourth step when said type is consistent with a type pre-specified by the viewer.

8. A device for automatically displaying an Internet homepage linked with a TV program being watched on a viewer's TV, characterized by having

a program guide data acquisition means that externally obtains the TV program guide data including the URL information of the Internet related to each TV program,

a storage means that stores the obtained program guide data in a nonvolatile manner,

a watched channel information detection means that detects the watched channel information indicating the channel that the viewer is watching,

a program specifying means that specifies the program being watched by comparing said watched channel information with the TV program guide data stored in said storage means,

an URL information identification means that identifies the URL information related to the specified information and included in the program guide data,

an Internet access means that accesses the identified URL information, and

a display means that displays the browser screen of the homepage of said URL information in one of divided screens on the TV or in a window opened on the TV screen.

9. The device described in Claim 8, characterized by the fact that said program guide data acquisition means uses the Internet or broadcasting media to automatically and periodically acquire said TV program guide data.

10. The device described in Claim 8 or 9, characterized by the fact that said program guide data acquisition means uses the Internet connection established by the operation of the viewer to automatically acquire said TV program guide data.

11. The device described in Claim 8, characterized by the fact that if the continuously watching time of a certain program is shorten than the prescribed time, the URL information of that program is ignored.

12. The device described in Claim 8, characterized by the fact that when said URL information identification means has recognized that time information in a program accompanying the URL information is designated, said access means will access that URL at the time indicated by said time information.

13. The device described in Claim 8 or 12, characterized by the fact that when said URL information identification means has recognized that multiple URL information items to access

are specified for a program, a menu window used for selecting one of the URL information items by the viewer is opened on the TV screen.

14. The method [sic; device] described in Claim 8, characterized by the fact that when said URL information identification means has recognized that the type of program accompanying the URL information is specified, said access means will access the URL if the type is consistent with a type pre-specified by the viewer.

15. A recording medium recorded with a computer program for realizing the following steps:

a first step for detecting the watched channel information indicating the channel that the viewer is watching,

a second step for specifying the program being watched by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information,

a third step for identifying the URL information related to the specified program and included in the program guide data,

a fourth step for accessing the identified URL information, and

a fifth step for displaying the browser screen of the homepage of said URL information in one of divided screens on the TV or in a window opened on the TV screen.

16. An information supply method by using an Internet homepage linked with a TV program, characterized by the following facts:

watched channel information indicating the channel that a viewer is watching is detected; the program being watched is specified by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information;

the URL information of the Internet related to the program being watched is obtained based on said TV program guide data on the viewer's TV;

the homepage of the URL information is automatically displayed on the TV screen instead of the program or along with the program by automatically accessing the detected URL of the Internet;

the information related to the program in the displayed homepage is supplied to the viewer.

17. A commodity trading method by using an Internet homepage linked with a TV program, characterized by the following facts:

watched channel information indicating the channel that a viewer is watching is detected;

the program being watched is specified by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information;

the URL information of the Internet related to the program being watched is obtained based on said TV program guide data on the viewer's TV;

the homepage of the URL information is automatically displayed on the TV screen instead of the program or along with the program by automatically accessing the detected URL of the Internet;

the displayed homepage advertises commodities or provides an ordering method or an ordering form.

#### Detailed explanation of the invention

[0001]

Technical field of the invention

The present invention pertains to a method and a device for automatically displaying an Internet homepage linked with a TV program.

[0002]

Prior art

The TV programs of private broadcasting stations are usually sponsored by one or several companies. Commercials are broadcast between TV programs. Since the commercials interrupt the TV programs, the number of commercials and the length of one commercial are limited.

[0003]

Sponsors are searching for more effective commercial contents and broadcasting methods within the aforementioned limitations. Also, sponsors are comprehending the viewer classes of programs by investigating the TV program watching situations of not only different generations but also different individuals.

[0004]

On the other hand, the personal computer (PC) has generally reached families in recent years, and the use of the Internet is growing rapidly. The Internet is an extremely large group of computer networks connected mutually on a global scale. The main functions include email, net news (electronic bulletin boards or electronic meetings), file transfer (FTP: file transfer protocol), world wide web (WWW), and the like. In particular, WWW is a group of hyper text documents described in a language known as HTML (hyper text markup language). It connects

various information items distributed on the Internet to each other and can also access these information items. Hyper text documents are distributed by computers on the Internet known as WWW servers. The users can use browsing software known as a WWW browser (also known as a web browser) in client computers to access the documents on the Internet. Special communication lines are used in enterprises to connect client computers to the Internet. However, when large-size equipment cannot be prepared by individuals, connection is established through facilities known as service providers that use their own special communication lines.

[0005]

In recent years, TVs that can be connected to the Internet or PCs having a TV function have become generally available to families.

[0006]

Problems to be solved by the invention

Under these circumstances, the present invention provides a method and a device that can provide services by a completely new method that links each TV program with the Internet.

[0007]

Therefore, an objective of the present invention is to provide a method and a device for automatically displaying an Internet homepage linked with a TV program on a TV screen.

[0008]

Another objective of the present invention is to provide a method that can automatically provide information corresponding to the program being watched by the viewer to the viewer.

[0009]

Means to solve the problems

The method provided by the present invention is for automatically displaying the Internet homepage linked with the TV program being watched on the viewer's TV. This method is characterized by having a first step for detecting the watched channel information indicating the channel that the viewer is watching, a second step for specifying the program being watched by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information, a third step for identifying the URL information related to the specified program and included in the program guide data, a fourth step for accessing the identified URL information, and a fifth

step for displaying the browser screen of the homepage of said URL information in one of divided screens on the TV or in a window opened on the TV screen.

[0010]

Watching a TV program and using the Internet (accessing a homepage or the like) that are conventionally performed separately can be combined organically by adopting the configuration of the present invention. A TV can constantly provide a continuous flow of information (video and audio) regardless of the viewer's intention and transmits information unilaterally. It offers a high level of publicity and extremely high reliability as an information supply medium. On the other hand, an Internet homepage is not publicized. There is no guarantee that many viewers will view a homepage. In the case of a homepage, however, the user can look at the same image as long as he (or she) wants, and it is possible to transmit information from the user side. This is a feature that is unavailable to a TV.

[0011]

The present invention organically combines different media, that is, TVs and the Internet. In other words, when the URL related to a program is automatically accessed in synchronization with that TV program, a homepage that can supply information (and receive a reply from the viewer) can be automatically displayed on the TV screen. Such timing link between the two media can generate significant effects in various applications, such as information supply, bi-directional communication, advertising, and commodity trading. Since the information provided can be changed as desired by only changing the content on the homepage without changing each URL on the information supply side, the content has high compatibility.

[0012]

The aforementioned TV program guide data can be acquired automatically and periodically by using the Internet or broadcasting media. Instead or additionally, the Internet connection established by the operation of the viewer can also be used to automatically acquire said TV program guide data. It is also possible to use the program guide data obtained from recording media (CD-ROM, DVD, MD, FD, or the like) attached to the TV guide magazine or the like.

[0013]

If the continuous watching time of a certain program is shorter than a predetermined time, the URL information of that program can also be ignored. In this way, it is possible to restrain

URL information access for a program that is only watched for a very short period of time when the user is switching the channel to search for a program to watch.

[0014]

If the time information for a program accompanying the URL information is specified in the third step, the URL is accessed at a time specified by the time information in the fourth step. In this way, it is possible to provide information at the most appropriate time point in a program. Also, when multiple such URL information items are prepared, it is possible to provide different information at different time points as the program progresses.

[0015]

If it has been recognized in the third step that multiple URL information items to access for a program are specified, a menu window used for selecting one of the URL information items by the viewer can also be opened on the TV screen. In this way, the viewer will not be forced to view the homepages of all the URLs, but can view only desired information.

[0016]

If it has been recognized in the third step that the type of program accompanying the URL information is specified, the URL will be accessed in the fourth step when the type is consistent with the type pre-specified by the viewer. In this way, it is possible to prepare many URLs and only automatically access an URL of a type desired by the viewer.

[0017]

The method of the present invention has been described above. The present invention also provides a device used for realizing this method.

[0018]

The device provided by the present invention is used for automatically displaying the Internet homepage linked with the TV program being watched on the viewer's TV. This device is characterized by having a program guide data acquisition means that externally obtains the TV program guide data including the URL information of the Internet related to each TV program, a storage means that stores the obtained program guide data in a nonvolatile manner, a watched channel information detection means that detects the watched channel information indicating the channel that the viewer is watching, a program specifying means that specifies the program being watched by comparing said watched channel information with the TV program guide data stored in said storage means, an URL information identification means that identifies the URL

information related to the specified information and included in the program guide data, an Internet access means that accesses the identified URL information, and a display means that displays the browser screen of the homepage of said URL information in one of divided screens on the TV or in a window opened on the TV screen.

[0019]

As described above, a means that acquires the program guide data by using the Internet or broadcasting media or a CD-ROM or other recording medium can be used as the program guide data acquisition means.

[0020]

Various configurations can also be realized for this device in the same way as in the case of the method.

[0021]

A TV that can be connected to the Internet, a PC having a TV function, or an Internet machine attached to a TV for each family, in which a computer program used for realizing said various methods is installed, functions as the device of the present invention.

[0022]

The present invention also includes a recording medium in which the aforementioned computer program is recorded. The recording medium includes a ROM mounted on the board in the device, a CD-ROM, a floppy disk, a DVD (digital video disc), an MD (mini-disc), a Zip medium, a memory card used as a movable non-volatile recording medium, a hard disk, and other fixed secondary storage devices.

[0023]

From another point of view, the present invention provides an information supply method by using an Internet homepage linked with a TV program. This method is characterized by the following facts: the watched channel information indicating the channel that the viewer is watching is detected; the program being watched is specified by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information; the URL information of the Internet related to the program being watched is obtained based on said TV program guide data on the viewer's TV; the homepage of the URL information is automatically displayed on the TV screen instead of the program or along with the program by automatically accessing the detected

URL of the Internet; the information related to the program in the displayed homepage is supplied to the viewer.

[0024]

In this way, as described above, it is possible to effectively combine the advantages of both a TV and the Internet. In other words, the information related to a program (information that cannot be provided qualitatively or quantitatively by a TV) can be provided timely in a form that complements the TV. Also, the bi-directionality of the Internet is used so that information (opinions, ideas, and the like) from the viewer side can be promptly absorbed.

[0025]

From yet another point of view, the present invention also provides a commodity trading method by using an Internet homepage linked with a TV program. This method is characterized by the following facts: the watched channel information indicating the channel that the viewer is watching is detected; the program being watched is specified by comparing TV program guide data including the URL information of the Internet related to each TV program and externally input into a storage means with said watched channel information; the URL information of the Internet related to the program being watched is obtained based on said TV program guide data on the viewer's TV; the homepage of the URL information is automatically displayed on the TV screen instead of the program or along with the program by automatically accessing the detected URL of the Internet; the displayed homepage advertises commodities or provides an ordering method or an order form.

[0026]

The aforementioned "commodities" includes both tangible articles and intangible services. Also, "order" is used as a wide concept including application, reservation, estimation request, and the like.

[0027]

By using this commodity trading method, it is possible to perform highly-effective propagation/advertisement that significantly exceeds conventional TV commercials in both qualitative and quantitative aspects without receiving strict limitations on the broadcasting time. Also, since the transmission function of the Internet from the user side can be used to place an order, a business means with a high level of promptness is created.

[0028]

The location of displaying a homepage or provision information on a TV screen according to the present invention is usually a typical family. The method of the present invention, however, can also be implemented as a business by a program sponsor, advertisement firm, TV station, or the like instead of for personal or family purposes.

[0029]

**Embodiment of the invention**

In the following, an embodiment of the present invention will be explained in detail.

[0030]

Before explaining the detailed configuration of the method and device of the present invention, the Internet as the basis of the present invention will be briefly explained.

[0031]

As shown in Figure 12, the hyper text documents are distributed by computers 243, 244 on the Internet known as WWW servers. The user can use a browsing software known as WWW browser (also known as web browser) in a client computer 241 (simply referred to as client hereinafter) to access the documents on the Internet. Special communication lines are used in enterprises to connect client computer 241 to the Internet. However, when large-size equipment cannot be prepared by individuals, connection is established through facilities known as service providers that use their own special communication lines. In other words, when dialup connection is established from client computer 241 to the host computer of a service provider via a public line, the Internet can be accessed. In this way, it is possible to obtain desired information (including text, images, sounds, and the like) from anywhere in the world while staying at home. This situation is known as net surfing since it is like surfing on waves of information.

[0032]

The unit of information to access is a file on the WWW server known as a page. The user can browse through contents from page to page. The length of a page is not fixed. It can be changed freely by the page author.

[0033]

An intrinsic address on the Internet known as an URL (uniform resource locator) is added to each WWW document (homepage). The URL structure is comprised of a protocol name, server name, and a bus name of the item as shown below.

[0034]

<http://www.abc.or.jp/def/ghi.html>

The protocol name indicates the method used by the computer to interpret the information. Since the WWW server and web browser exchange information using a method known as HTTP (hyper text transfer protocol), the protocol name at the beginning of said URL is "http:". There is also a protocol known as ftp that is used for file transfer. www.abc.or.jp is the server name. "www" means that the server is a WWW server. The "abc" in "abc.og.jp" is the organization name, the "or" is the type of organization (in this case, various kinds of groups/individuals), and "jp" is a code indicating the country (in this case, Japan). Following the server name, the bus name of the item "def/ghi.html" indicates the location of the item on the server. The bus name usually indicates the name of the file that constitutes the page. The "def" in "def/ghi.html" is the directory name, "ghi" is the file name, and "html" is an extension indicating that the file is an html file.

[0035]

In the following, the structure of an HTML file (HTML document) will be explained.

[0036]

HTML is an abbreviation for Hyper Text Markup Language. WWW documents (documents) are described using this language. The documents described by this language are called HTML documents. Their files are known as HTML files (or HTML texts).

[0037]

Figure 11 shows the basic structure of an HTML document. An HTML document is predominantly a text file. It, however, has embedded codes known as tags (represented by symbols "<" and ">") dispersed in the page. The designated range is usually sandwiched by a pair of tags, that is, a beginning tag and an ending tag. The ending tag is distinguished from the beginning tag by "/". It, however, may be used alone as in <P> indicating another paragraph. The tags can be used to set link information in addition to character decorating information or layout information. The browser interprets the tags, displays the HTML document on the screen in the form designated its author, and controls the link.

[0038]

Since HTML itself is well known, a detailed explanation is omitted. For the basic structure of an HTML document, as shown in Figure 11(a), various kinds of tags are mixed in

the text document. When this HTML document is interpreted and displayed on the screen by the browser, the tags are not displayed as shown in Figure 11(b). Only the content will be displayed. The function of jumping to another page related to a character string in an HTML document when that character string is indicated (for example, clicked) by the user is known as linking. Link 201 in the page of HTML document "aaa.html" shown in Figure 11(a) is described as

<A HREF="bbb.html">BBB</A>

The tags used for setting a link are known as anchor tags (<A ... > ... </A>). The section sandwiched by anchor tags is known as an anchor point or hot point. "HREF=" in the beginning tag <A HREF="bbb.html"> of the anchor tag indicates the access information of the link destination (in this case, file name). In part of this anchor tag, character string "BBB" is displayed with emphasis as shown by displayed character string 203 in Figure 11(b) on the browser screen. A display with emphasis can be realized by distinguishing the color from other character strings or underlining. In this way, when the user indicates that character string, it is possible to jump to another page.

#### [0039]

Also, link 202 shows a case in which an inline image becomes a link. In this case, an image file known as "ggg.gif" is displayed as image 204 on the screen. When that image 204 is indicated by the user, the content of the link destination "bbb.html" is read out and displayed. In this case, the inline image is an image embedded in the page of the HTML document. Link 205 (206) is a link that takes advantage of the email function of the browser so that the email sending screen (not shown in the figure) in which the email address of the receiver is automatically inserted can be displayed by simply clicking that part on the home page. Additionally, although it is not shown in the figure, an input form used by the user to input information can also be prepared.

#### [0040]

In the following, an exchange of information between the client and WWW server during WWW access will be briefly explained by again referencing Figure 12.

#### [0041]

The user starts the web browser after client 241 is connected to the Internet. In this way, with regard to a prescribed (changeable) URL, the web browser on client 241 can request WWW server 243 to transfer the content (HTML text) of the page specified by that URL (REQ1). In response, server 243 sends the HTML text of that page to client 241 (RES1). The browser receives the text and analyzes its content and displays it on the screen of client 241. If an inline

image (sound, and the like) is included in the page, that information is also requested from server 243 (REQ2). In response, server 243 sends back the image file (RES2). The browser receives the image file and displays the image at a designated position in the page. When the user indicates a link on the page displayed on the screen, if the link destination is another page on the same server 243, server 243 is requested to transfer the HTML text of that page (REQ3). In response, server 243 sends back that text (RES3). If the link destination of the link indicated by the user on the page is on another WWW server 244, server 244 is requested to send the page information of that link destination (REQ4). In response, server 244 sends back that page information (RES4). The browser displays the received information on the screen.

[0042]

WWW access is carried out with the aforementioned procedure. The user can also access a page by entering any URL from the operation part (remote control or keyboard) without designating a link. The information can also be transmitted from the user side as described above.

[0043]

In the following, an embodiment of the present invention will be explained in detail.

[0044]

First, Figure 1 shows the hardware configuration example of a device used for realizing this embodiment. In this case, it is assumed that a TV has an Internet connection function. However, it is also possible to use a PC having a TV function. Also, when a means is used to detect the watched channel information or the like of a TV in a non-connection state as to be explained later, the device of the present invention can also be externally attached to a TV.

[0045]

As shown in Figure 1, central processing unit (CPU) 101 is connected to bus 100 to control the entire device shown in Figure 1 via bus 100. CPU 101 has a calendar/clock function that can output the current date and time based on a clock oscillator not shown in the figure. Mask ROM 105 stores various kinds of computer programs to be executed by CPU 101 and the essential data. The data of the font used on the TV screen are stored in font ROM 106. Flash memory 107 is a rewritable non-volatile memory. It is used to store URLs, email addresses, and other information that the user wants to store in a non-volatile manner. Also, programs whose versions can be updated can be stored in flash memory 107. Instead of or in addition to the flash memory, it is also possible to use an MD (mini-disc), hard disk, or other secondary storage

means as a nonvolatile storage means. RAM 108 provides a temporary storage region and an operation region needed by CPU 101 to execute programs and a region for storing various parameters needed for program execution.

[0046]

Connection to a public line is realized via line terminal (LINE). The line terminal is connected to bus 100 via modem 118 and serial controller 117. If an ISDN line is used, a DSU (data service unit) and TA (terminal adapter) are used although they are not shown in the figure.

[0047]

When this device displays the page information received from the public line on display 122, the display content is drawn on temporary display memory (VRAM) 111 via display controller 110. The content of said display memory 111 is input into switching circuit 124 via digital/analog (D/A) converter 112.

[0048]

Sound information may be included in the page information. Audio controller 114 and digital analog (D/A) converter 115 are provided in order to make the device sound compatible. Audio signals are output from them and input into switching circuit 124.

[0049]

TV circuit 121 extracts and demodulates the video signals and audio signals of each channel selected from the broadcast radio waves received from antenna 120 and outputs them to switching circuit 124.

[0050]

Under the control of CPU 101, switching circuit 124 switches between the signals sent from TV circuit 121 and the signals sent from D/A converter 112 and outputs the signals to display 122 and speaker (SP) 123. When said switching circuit 124 is switched dynamically during screen display, multiple divided screens or a window screen can be displayed on the TV screen.

[0051]

The user uses remote control 102 to control this device. The signal (for example, an IR signal) generated by remote control 102 is received by receiver 103, and that signal is interpreted

by CPU 101. Remote control 102 is also used to control normal TV operation. The signal for TV operation is sent to CPU 101 via TV controller 104.

[0052]

In the device shown in Figure 1, the device configuration for the Internet and the device configuration for the TV are controlled by the same CPU 101. They, however, can be controlled by different CPUs.

[0053]

In the device shown in Figure 1, in order to instruct connection to the Internet, the user presses, for example, a special button on remote control 102. As a result, CPU 101 starts the software for Internet browsing known as a web browser and performs dialup connection to the Internet connection provider. In this way, a menu window (not shown in the figure) including various menu items is displayed on the TV menu. The viewer can browse the desired page by selecting the menu item from said menu window.

[0054]

Figure 2 shows the flow chart of a processing example of acquiring program guide data in this embodiment. This processing is started automatically and periodically at a prescribed time everyday or on selected days (preferably, late at night when there is no TV broadcasting) as known by the user to automatically access the site (URL) on the Internet that provides the TV program guide data. Alternatively, the program guide data are sent by email to each viewer and are automatically obtained from the user side. This device can distinguish normal emails from emails of the program guide data depending on the title or the like.

[0055]

When it has been confirmed that the data and time have been set by the calendar/clock function, first, it is determined whether it is necessary to acquire the program guide data (S20). This is because there is no need to acquire the program guide data daily if the data of about one week have been previously acquired at one time. New program guide data are acquired only when program guide data are lacking for several days. The program guide data can also be acquired automatically non-periodically during a spontaneous Internet connection performed by the viewer. In this case, said judgment step S20 is also valid.

## [0056]

If it is necessary to acquire the program guide data, line connection is attempted (S21). If the line connection fails (No in S22), another attempt is made within a number of reattempts (S26, S21). If the number of reattempts is exceeded, the line connection is stopped and the processing is ended (END).

## [0057]

If the line is connected successfully (Yes in S22), first, the URL that provides the program guide data is accessed (S23). That URL is preset. For example, it is automatically stored in flash memory 107 when the browser program is installed. After step [S]23, the program guide data are acquired from that URL and are also stored in flash memory 107 (S24). If there is a battery backup region in RAM 108, the program guide data can also be stored there. If there is a hard disk or other secondary storage device, the program guide data can also be stored there. Subsequently, the line is cut off (S25), and the processing is ended (END).

## [0058]

The program guide data can also be acquired automatically on the TV side by using broadcasting media (character broadcast, inter text, or digital satellite broadcast) without using the Internet. The program guide data can also be read from a portable recording medium, such as a CD-ROM.

## [0059]

Figure 3 shows a specific example of program guide data. This is an example of the program guide of each TV broadcasting channel in the Tokyo area on August 23, 1996 (does not actually exist). Based on that program guide, the viewer can determine what program is broadcast on which channel at a certain time on that day in that area. The viewer can also determine the beginning and ending time of a certain program from the program guide. Also, depending on the program, one or several URL (<http://www....>) information items correspond to each program. In addition to the URL, the URL information also includes URL type information and time information. For example, the type information can be attached to the URL as "TYPEx" in the figure. The type can be used as a reference for selection by the viewer as to be explained later. However, said type information is not required. In addition, a numeric value (shown in parentheses) can be added as time information to the URL as for program "Drama B" at 21:00 on CH 6. Said time information indicates the relative time from the beginning time of that program. It is used to access the URL at a relative time converted from the beginning time based on said relative time. For an URL having no time information (for example, program "Drama A" at

21:00 on CH 4), the URL is accessed at the beginning time of that program without specifying the time (the time point when a channel is selected during a program). Although it is not shown in Figure 3 for simplification, the item name can be added to each URL as to be described later.

[0060]

Although the relative time is used as the time information in this case, it is also possible to use the absolute time. Also, the program guide shown in Figure 3 is displayed as data in a table form so that the viewer can browse the data on the TV screen with the aid of the browser. The program guide, however, can also be in the form of text data or binary data when the data are not displayed to the viewer.

[0061]

Figure 4 shows the processing that starts when the TV is turned on. In this processing, first, an interval timer for acquiring the corresponding URL (not shown in the figure) is turned on (S41). As a result, the processing of acquiring an URL corresponding to the program shown in Figure 6 is carried out periodically. Then, flag F is reset to 0 (S42). Said flag F is used in the processing shown in Figure 6. Subsequently, a variable PCH keeping the previously watched channel is reset to 0 (S43). This variable PCH is also used in the processing shown in Figure 6 that will be described later

[0062]

Figure 5 shows an example of the processing carried out when the viewer turns off the TV.

[0063]

In the processing shown in Figure 5, first, said interval timer is turned off (S51). It is used to stop the periodic execution of the processing shown in Figure 6 since there is no need to acquire an URL corresponding to a program after the TV is turned off. Then, the main power is turned off, and the processing is ended (S52). In this case, the main power is the power of the parts related to the TV. CPU 101 can also operate constantly.

[0064]

Figure 6 shows the processing carried out periodically (for example, every few seconds) during the period after the power of the TV is turned on and before the power is turned off. As a result of this processing, it is possible to sequentially and automatically recognize which channel that the viewer is watching, what program the viewer is watching, whether an URL is set for that

program, the type of URL, and whether, unknown to the viewer, time information is added to that URL. That URL can be accessed automatically under prescribed conditions.

[0065]

In the processing shown in Figure 6, first, channel CCH being watched is detected (S600). A TV whose channel operation can be performed by using a remote control has the function of identifying the channel being selected by a command known as a channel call. The channel (CH. ID) being selected can be confirmed by the same function. Also, as described in Japanese Kokai Patent Application No. Sho 63[1988]-37726, a device installed in the viewer's TV set acting as a monitor can automatically record the watched channel and its time data in order to collect TV program watching data. In this device, a channel detector separated from the TV is used to detect the channel being watched by the viewer. The theory involves picking-up leaked radio waves of the partial oscillator of the TV receiver. When the device of the present invention is used separately from the TV main body, the channel detection method described in the aforementioned conventional technology can be used.

[0066]

Then, whether flag F is 0 is checked (S601). This flag is used only for processing different from normal processing when the processing for acquiring the URL corresponding to the program is carried out for the first time after the power of the TV is turned on. The initial value is set at 0 when the TV is on (S42 in Figure 4). Consequently, the process first goes to the Yes side in step S601. Then, the program guide data of that day are read out from said program guide data and are stored in RAM 108 (S602). The program on channel CCH being watched is specified based on the program guide data of that day (S603). At that time, the beginning time and ending time of that program are also read out and are temporarily stored in RAM 108. Then, flag F is set at 1 (S604). Since the flag value is changed, from the processing for acquiring URL corresponding to program of the next round (after several sec), the process goes to the No side in step S601.

[0067]

After the flag value is changed in step S602, current channel CCH is stored as the previous channel CCH (S610), and current processing for acquiring the URL corresponding to the program is ended.

**[0068]**

In the next processing for acquiring the URL corresponding to a program, after the channel CCH being watched is detected (S600), the process goes to the No side as described above in step 601. Then, the current channel CCH is compared with the previous channel PCH (S605). If they are the same (that is, if the channel has not been switched), whether the program on that channel CCH has been watched continuously for x sec or longer is checked (S606). Said x sec is used to restrain accessing the URL of a program switched in a fairly short period of time. The value of x can be changed depending on how long a time is deemed to be a case of actually watching a program. In this case, it is set at 30 sec. If the current channel is not watched continuously for longer than 30 sec, the process goes to step S610 to replace PCH with CCH and end the current processing.

**[0069]**

In the next processing for acquiring the URL corresponding to a program, similarly, there is no channel change in step S606. After the processing from steps 607 to step 613 is repeated several times, if the time has exceeded x sec, the process goes from step 606 to the next step S607. In this case, the automatic Internet connection to be described later is carried out.

**[0070]**

Then, whether the current time exceeds the ending time of the current program on CCH is checked (S608) in order to identify a new program at the program break. If the ending time is not exceeded, the current processing is ended through step S610. If the ending time is exceeded, the new program on CCH is specified in the same way as in step S603 (S609). At that time, the program guide data of that day read out in the previous step S602 are still stored in RAM. After that, PCH is replaced by CCH (S610), and the current processing is ended.

**[0071]**

If it is found in said step S605 that the current channel CCH is different from the previous channel PCH, that is, if the channel has been changed, the current processing is ended through step S610.

**[0072]**

Figure 7 shows an example of the detailed processing procedure for specifying the program (program name or program ID) at the current time on a specific channel shown in steps S603, S609 in the processing shown in Figure 6. In this embodiment, the program guide data are

in such a form that it is possible to sequentially access the program on any channel in a time band unit of 1 h. The present invention, however, is not limited to this data form.

[0073]

In the processing shown in Figure 7, first, the data of a time band including the current time are acquired (S701). Then, the channel of the program guide data is confirmed until the current channel CCH is consistent with the channel of the program guide data (S702, S703). Then, whether multiple programs are present in the current time band (1 h) on channel CCH is checked (S704). If not, the process goes to step S706. If yes, the program concerned at the current time is specified (S705). In step S706, all of the URLs (and time information) set for that program are acquired, and the processing shown in Figure 7 is ended.

[0074]

Figure 8 shows a specific example of the automatic Internet connection shown in Figure 6.

[0075]

In the processing shown in Figure 8, first, it is checked whether there is desired URL information at the current time on the current channel (S801). If no, the current processing is ended, and the process returns to the processing shown in Figure 6 (RET). Here, "desired" has the following meaning. When neither time information nor type information is specified, all of the URLs set for that program are desired. When time information is included in URL information, the URL at the time consistent with said time information is desired. If type information is included in the URL information and type information is specified by the viewer, an URL of a type consistent with the type information specified by the viewer is desired. If there is such desired URL information, the connection to the line is confirmed (S802). If the connection to the line is not established yet, the line connection is performed (S803). Retry processing is omitted in this figure. Also, the browser is started (S804). Then, if there are multiple desired URL information items is checked (S805). For example, the program at 21:00 on CH 4 shown in Figure 3 has three URLs. If a type is not specified by the viewer, since time information is not specified in these URL information items, all of the URLs are desired. On the other hand, the program at 21:00 on CH 6 has two URL information items. However, since they have different time information, they cannot be simultaneous desired URLs. The viewer can pre-designate the type of URL on an initial setting screen (not shown in the figure).

[0076]

If there are multiple desired URLs, a menu window 901 is displayed as shown in Figure 9, and the viewer is prompted to select one of the item names corresponding to these URLs (S806). Figure 9 shows the state when item "electronic shopping" 905 is selected from the URL items "electronic shopping" 905, "performer profile" 906, and "questionnaire" 907 by using the cursor 903 in window 901 that can be operated by remote control 102. These item names are included in the program guide data shown in Figure 3 as described above.

[0077]

If there are multiple desired URLs, it is also possible to select the multiple URLs automatically and sequentially instead.

[0078]

Returning to Figure 8, the URL determined in this way is automatically accessed (S807). Then, normal browser operation is allowed to the viewer (the browser operation of the user is received) (S808).

[0079]

If the viewer operates the remote control to end the browser (Yes in S809), the process goes to step 810. Otherwise, the current processing is ended. It is also possible to continuously receive browser operation from the viewer after this.

[0080]

If there is an ending instruction, the browser is ended (S810), the line is cut off (S811), and this processing is ended.

[0081]

In this embodiment, the following are considered as an URL that is actually prepared.

[0082]

(1) Sponsor URL

This is the company URL of the homepage prepared by the program sponsor.

[0083]

(2) Commodity URL (electronic shopping URL)

This is the URL of a homepage that advertises commodities (including services) handled by the program sponsor and commodities used in the drama (such as the clothing of the leading characters, coffee cups, automobiles, glasses, hairstyles, restaurants, hotels, and the like) or that provides detailed information of commodities introduced in the program or that provides online shopping or reservation of these commodities.

[0084]

Figure 10 shows a display example of a homepage. This example shows a case in which the program is a drama, and the T-shirts worn by the leading characters in the drama are advertised. The viewer can also use the browser function to purchase the T-shirts online. In other words, if "order form" on the browser screen is clicked, an order form (not shown in the figure) is displayed. The viewer can make a purchase by sending the form after filling in the required sections.

[0085]

(3) Performer URL

This is the URL of a homepage that publishes the information regarding the performers of the program (for example, profiles, photos, and the like).

[0086]

(4) Questionnaire URL

This is the URL of a homepage prepared by the program sponsor or broadcasting station to collect opinions and ideas of the viewers on the program via email.

[0087]

(5) Quiz URL or reward URL

This is the URL of a homepage for providing information on a quiz or contest questions regarding the program. Although there is a limitation on the amount of information or time for such questions while the program is being played, it is possible to very effectively promote the program by including a separate homepage in synchronization with the progress of the program.

[0088]

(6) Relay information URL

This is the URL of a homepage for providing various information to the viewer regarding sports programs or election programs. For example, it is possible to display a game played at another field during a baseball program, or the data of another player in a golf program, or the data from an angle different from that of this program.

[0089]

A preferable application example of the present invention has been explained above. Various modifications and changes can be made without departing from the gist of the present invention. Although these URLs are showed as individual ones, they are not necessarily independent but can be combined into one URL. The aforementioned URLs are examples only. Other kinds of URLs can also be used.

[0090]

**Effect of the invention**

According to the present invention, when an Internet homepage linked with a TV program is automatically displayed on a TV screen, that is, when watching a TV program and using the Internet (access homepage or the like) that are conventionally performed separately are combined organically to automatically access an URL related to the program, it is possible to instantaneously provide more information related to the program and receive an instantaneous reply from the viewer, which was difficult to realize in the past.

[0091]

Also, multiple URLs attached to the same program can be provided at the same time to the viewer, and one of them selected by the viewer or an URL of a certain type pre-specified by the viewer can be accessed automatically.

[0092]

It is also possible to use the present invention to realize various new services.

[0093]

Brief description of the figures

Figure 1 is a block diagram illustrating a hardware configuration example of a device to which the present invention is applied.

Figure 2 is a flow chart illustrating a processing example of acquiring program guide data in an embodiment of the present invention.

Figure 3 is a diagram explaining a structure example of the program guide data in the embodiment of the present invention.

Figure 4 is a flow chart illustrating a processing example when the TV is on in the embodiment of the present invention.

Figure 5 is a flow chart illustrating a processing example when the TV is off in the embodiment of the present invention.

Figure 6 is a flow chart illustrating a processing example of acquiring an URL corresponding to the program (and automatic URL access) in the embodiment of the present invention.

Figure 7 is a flow chart illustrating a processing example for specifying a program in the embodiment of the present invention.

Figure 8 is a flow chart illustrating a processing example of the automatic Internet connection shown in Figure 6.

Figure 9 is a diagram explaining a display example of the menu window in step S806 in Figure 8.

Figure 10 is a diagram explaining the browser screen of the homepage of an URL accessed in step S807 in Figure 8.

Figure 11 is a diagram explaining an HTML document and the browser screen corresponding to that file.

Figure 12 is a diagram explaining the communication between a client and WWW server on the Internet.

#### Explanation of symbols

- 101 CPU
- 102 Remote control
- 103 Receiver
- 105 Mask ROM
- 106 Font ROM
- 107 Flash memory
- 108 RAM
- 110 Display controller
- 111 Display memory (VRAM)
- 118 Modem
- 120 Antenna

121 TV circuit  
 122 Display  
 123 Speaker (SP)  
 124 Switching circuit

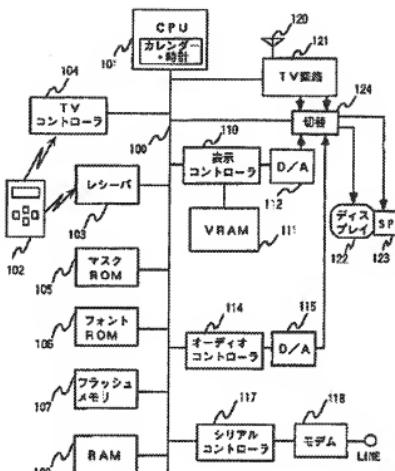


Figure 1

Key:

- 101 CPU  
Counter/clock
- 103 Receiver
- 104 TV controller
- 105 Mask ROM
- 106 Font ROM
- 107 Flash memory
- 110 Display controller
- 114 Audio controller
- 117 Serial controller
- 118 Modem
- 121 TV circuit
- 122 Display
- 124 Switch

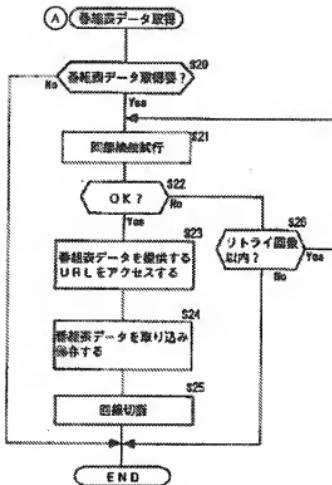


Figure 2

Key:

- A Acquire program guide data
- S20 Is it necessary to acquire program guide data?
- S21 Line connection test
- S23 Access the URL that provides the program guide data
- S24 Acquire and store the program guide data
- S25 Cut off the line
- S26 Within the number of retry times?

| TOKYO 1995.8.23 |       |       |                                        |                                          |                                                                                               |       |  |
|-----------------|-------|-------|----------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------|-------|--|
| CH ID           | CH名   | ..... | [19:00]                                | [20:00]                                  | [21:00]                                                                                       | ..... |  |
| ...             | ...   | ...   | ...                                    | ...                                      | ...                                                                                           | ...   |  |
| ...             | ...   | ...   | ...                                    | ...                                      | ...                                                                                           | ...   |  |
| DL 4            | 日本放送  | ..... | :00 クイズ                                | :00 歌謡曲<br>http://www...<br>(type) (3.0) | :00 ドラマ A<br>http://www...<br>(type1)<br>http://www...<br>(type2)<br>http://www...<br>(type3) | ..... |  |
| DL 6            | OCOTV | ..... | :00 スポーツ中継<br>http://www...<br>(type4) | [録画]                                     | :00 ドラマ B<br>http://www...<br>(type1)(3.0)<br>http://www...<br>(type2) (4.5)                  | ..... |  |
| ...             | ...   | ...   | ...                                    | ...                                      | ...                                                                                           | ...   |  |
| ...             | ...   | ...   | ...                                    | ...                                      | ...                                                                                           | ...   |  |

Figure 3

Key:

- A CH name
- [19:00]
- [20:00]
- [21:00]
- B Broadcast
- :00 Quiz
- :00 Songs
- :00 Drama A
- C :00 Sports relay
- [Continued]
- :00 Drama B

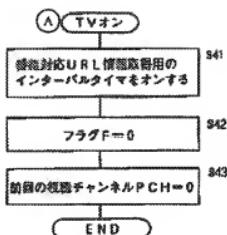


Figure 4

Key: A TV on

S41 Turn on the interval timer for acquiring URL information corresponding to the program

S42 Flag F = 0

S43 Previously watched channel PCH = 0

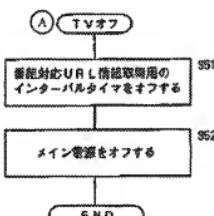


Figure 5

Key: A TV Off

S51 Turn off the interval timer for acquiring URL information corresponding to the program

S52 Turn off the main power

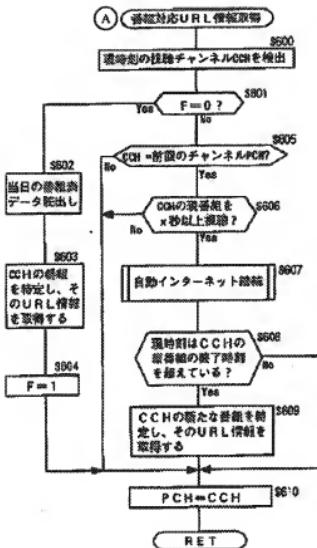


Figure 6

Key:

- A Acquire URL information corresponding to the program
- S600 Detect the channel being watched
- S602 Read out the program guide data of that day
- S603 Specify the program on CCH and acquire the URL information
- S605 CCH = previous channel PCH?
- S606 Current program on CCH is watched for x sec or longer?
- S607 Automatic Internet connection
- S608 The current time exceeds the ending time of the program on CCH?
- S609 Specify new program on CCH and acquire its URL information

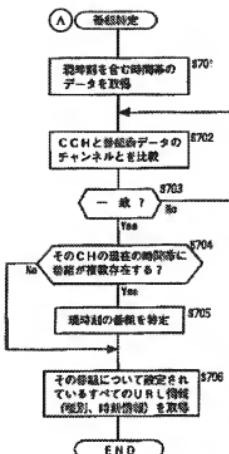


Figure 7

Key: A Specify program

S701 Acquire the data of the time band including the current time

S702 Compare the CCH with the channel of the program guide data

S703 Same?

S704 Are there multiple programs in the current time band on that CH?

S705 Specify the program at the current time

S706 Acquire all of the URL information (type, time information) set for that program

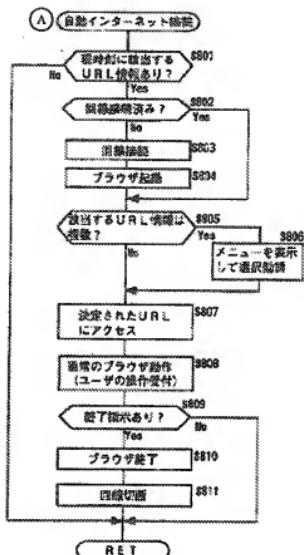


Figure 8

Key: A Automatic Internet connection

S801 Is there desired URL information at current time?

S802 Is line connection finished?

S803 Line connection

S804 Start browser

S805 Are there multiple desired URL information items?

S806 Display menu and select

S807 Access the determined URL

S808 Normal browser operation (receive the operation of the user)

S809 Is there an ending instruction?

S810 End the browser

S811 Cut off the line

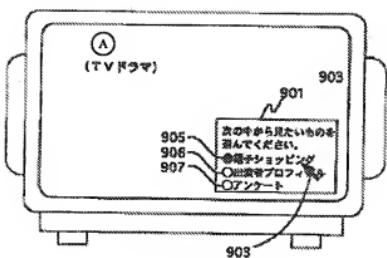


Figure 9

Key: A (TV drama)  
 901 Please select one from the following  
 Electronic shopping  
 Performer's profile  
 Questionnaire

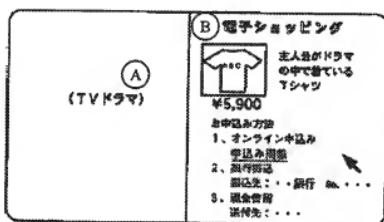


Figure 10

Key: A (TV drama)  
 B Electronic shopping  
 T-shirt worn by the leading character in the drama  
 5900 yen  
 Purchase method  
 1. Online purchase  
 2. Bank transfer  
 Receiver: .. Bank Account No.  
 3. Cash  
 Receiver:

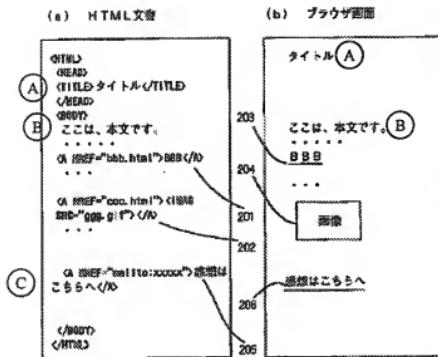


Figure 11

Key:

- (a) HTML file
- (b) Browser screen
- A Title
- B This is the main text.
- C Provide opinions here
- 204 Image
- 206 Provide opinions here

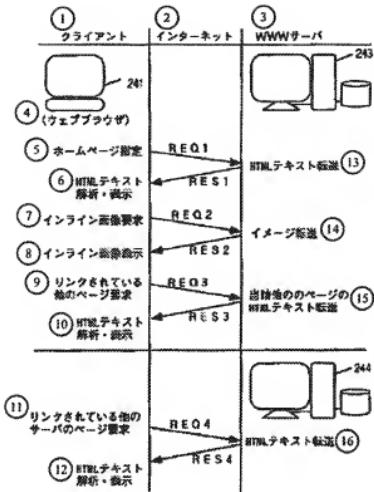


Figure 12

Key:

|    |                                             |
|----|---------------------------------------------|
| 1  | Client                                      |
| 2  | Internet                                    |
| 3  | WWW server                                  |
| 4  | (Web browser)                               |
| 5  | Designate the homepage                      |
| 6  | Analyze/display HTML text                   |
| 7  | Request inline image                        |
| 8  | Display inline image                        |
| 9  | Request for another linked page             |
| 10 | Analyze/display HTML text                   |
| 11 | Request for a page on another linked server |
| 12 | Analyze/display HTML text                   |
| 13 | Send HTML text                              |
| 14 | Send image                                  |
| 15 | Transfer the HTML text of that other page   |
| 16 | Transfer HTML text                          |